

ABSTRACT

Monitoring of selected markers of damage to the colon after induction of chronic colitis

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Crohn disease and Colitis belong to the Inflammatory Bowel Diseases. AHR is Arylhydrocarbon receptor, which was suggested to affect the activity of immune system. Bilirubin is endogenous substance with significant antioxidative and anti-inflammatory effects. In this pilot thesis, we wanted to study the expression of AHR and large intestine wall after the induction of chronic colitis in normobilirubinemic (Wistar) and hyperbilirubinemic (Gunn) rats.

Sixteen rats for Wistar and sixteen rats for Gunn were used in the experiment. Eight rats from each strain were administered by dextran sulphate (DSS) in drinking water for 7 days. All animals were on drinking water for another 14 days. This cycle was repeated three times.

Immunohistochemical staining revealed the expression of AHR muscular layer and muscularis mucosa in all experimental groups. Administration of DSS resulted in increased expression of AHR in epithelial cells in Wistar rats. AHR expression was higher in non-treated Gunn rats when compared with non-treated Wistar. DSS treatment resulted in decreased expression of AHR in Gunn rats in epithelium.

In conclusion, the results of this pilot study show increased epithelial expression of AHR in epithelium of hyperbilirubinemic (Gunn) rats when compared with Wistar rats, however the possible importance of this finding in protection of bilirubin in inflammatory bowel disease must be evaluated in the future.